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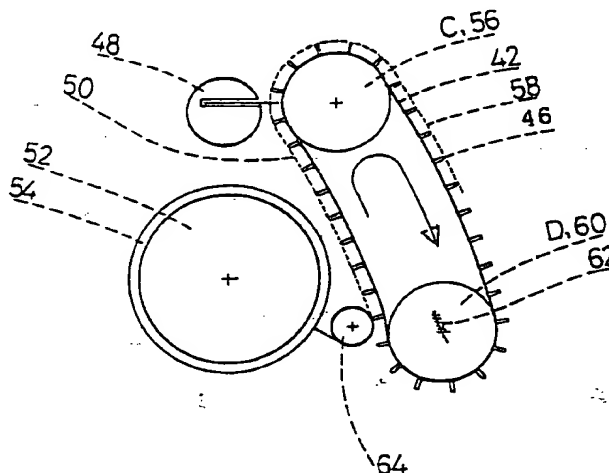
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 (71)(72) Applicant and Inventor: OH, Young, Seok [KR/KR];
 Ga Yang Ju Taek #302, 48-44, Yeo Wol-dong, Jung-Gu,
 Bucheon-si, Kyeong Gi-do 421-220 (KR).
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(54) Title: AN ADHESIVE TAPE CUTTING APPARATUS APPLYING A CONVEYOR BELT



(57) Abstract

The present invention relates to an adhesive tape cutting apparatus applying a belt like a conveyor belt, and particularly to an apparatus for cutting a transparent Scotch tape. Pulling a belt by hand or turning a belt by an electrical motor, a tape is lifted up on an adhesive flash (46) of the belt. This apparatus is used mainly in the shops and offices such as a department store, a book store, and a confectionery, and it is characterized in that lots of quantities of the tape are cut by one-shot. As for the construction and principle, an adhesive tape is attached on an adhesive flash (46) through a compression apparatus (64) by rotating a conveyor belt-shaped belt, the adhesive tape is pulled up, a tape roll (54) is released, the adhesive tape lifted up attaching on an adhesive flash (46) is cut by a cutting apparatus (48), and the cut tape is manually taken for use one by one from the belt. This invention is that of new uses applying a conveyor belt or other form of belt using mainly as an endless wheel, to entirely new uses as well as that of a mechanical apparatus. The present invention has the mechanism of a pulley, and thus is operated smoothly. The invention also has the possibility of variously adjusting the cutting length of the tape by applying a cutting apparatus having an improved function, and enables various and original designs as well.

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AN ADHESIVE TAPE CUTTING APPARATUS APPLYING A CONVEYOR BELT

TECHNICAL FIELD

The present invention relates to an apparatus for applying a conveyor belt or a belt like an endless-wheel to an adhesive tape cutting apparatus.

BACKGROUND ART

An adhesive tape cutting apparatus which has been publicly disclosed is the cutting apparatus which is most commonly used, called as a dispenser or a tape holder. In this apparatus, the adhesive tape is cut one by one holding on a saw blade by directly pulling up the tape manually from a tape roll. As other ones, there are an apparatus in which the tape is automatically drawn to the desired length by using an electrical motor and the drawn tape is cut one by one holding on a saw blade, an apparatus like a water wheel of pirn winder which is used for drawing and cutting the adhesive tape(Korean Utility Model Registrantion No. 88-38404), etc. In order to explain the present invention as compared with an adhesive tape cutting apparatus applying a water wheel of pirn winder, a drawing for the water wheel of a pirn winder apparatus for cutting an adhesive tape(Fig. 6) is accompanied hereto(hereinafter called as "pirn winder cutting apparatus").

INDUSTRIAL APPLICABILITY

The existing apparatus for cutting an adhesive tape mentioned above is used when goods are packed in a bookstore, a department store, a confectionery, a stationery shop, etc., and when editing or filing documents in an office. The present invention is, of course, used for the same service that the existing adhesive tape cutting apparatus has provided with, and further can be used in a company or an office manufacturing a printing mechanism(film), in a photo studio developing a photograph quickly and printing the photo, and in a factory

manufacturing and packing goods in large quantities. For example, in the offices manufacturing a printing film, each adhesive tape is attached on a plate glass lengthways and is cut manually by a knife at one time. The present invention can
5 supersede this operation.

DISCLOSURE OF THE INVENTION

The present invention uses a conveyor belt, whereas, a prior patent illustrated in Fig. 6 uses the water wheel of a pirn winder. In the pirn winder cutting apparatus, if turning
10 a driving handle grip(86) by hand, a compression roller(92) draws the adhesive tape attaching on a water wheel(88), a triangular roller cutting apparatus(94) cuts the tape when it is turned gearing into the water wheel(88), and the cut tape is taken from the water wheel(88) by hand for uses. The
15 aforementioned prior art has the same basic principle as that of the present invention to be explained in detail hereinafter. However, in the prior art, the space or extent on which the cut tape is being attached when the tape is lifted up, is narrower, thus the quantities of the tape which can be cut by
20 one-shot are fewer, and the possibility of adjusting the cutting length of the tape in various ways by using other cutting apparatuses developed further is fewer, than when a conveyor belt is applied thereto. Namely, in the present invention using a conveyor belt, the space or extent on which
25 the cut tape is being attached becomes wider in accord with extension of the belt length, thus the quantities of the tape which can be cut by one-shot can be added up to the desired quantities, and the present invention provides the possibility of adjusting the cutting length by applying various cutting
30 apparatuses.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is described with reference to the

accompanied drawing.

In the drawing;

Fig. 1 is a perspective view illustrating a design of an apparatus according to the present invention.

5 Fig. 2 is an explanatory view illustrating the principle and constitutional elements of the present invention.

Fig. 3 is a constitutional diagram illustrating use of the design according to the present invention.

10 Fig. 4 is an explanatory view illustrating the cutting apparatus according to the present invention.

Fig. 5 is an explanatory view illustrating the belt hole according to the present invention.

15 Fig. 6 is an explanatory view for explaining the construction and advantages of the present invention as compared with those of the prior art.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The construction and advantages of the present invention will be more apparent from the following description and accompanied drawing.

20 Fig. 1 is a perspective view illustrating a cutting apparatus according to the present invention, designed for use in a desk. As for the belt in detail herein, there are a belt hinge(44) projecting outwardly, an adhesive flash(46) projecting like a rack at a uniform interval, rails A,B, and a
25 rail hole(40). These elements are not the basic elements of the present invention or essential elements thereof. That's to say, if a belt is connected from an adhesive flash(46) into the end of narrow space attaching the adhesive tape at the time when manufacturing by an iron plate processing method or an
30 injection molding thereof is made, a separate hinge thereof is not necessary. Also, if the belt is made of flexible materials by means of one metal molding, the hinge thereof is not

entirely necessary. Further, rails A,B, and a rail hole(40) are engaged with a cutting apparatus(48) to be described hereinafter, for operation. Accordingly, if a triangular roller cutting apparatus(94) of the pinn winder or a cutting apparatus 5 applying an electrical motor and a solenoid is used instead of said cutting apparatus(48), the rails A,B, and the rail hole will not be necessary; or the rail hole can be replaced by a gear according to circumstances. Therefore, the basic requirement of the belt is that an adhesive flash(46) having 10 the narrow space on which an adhesive tape can be attached, projects at a uniform interval so that a finger can be inserted therein. The remaining constitutional elements are optional elements in a design.

Fig. 2 is a schematic illustration for explaining the 15 principle, operation and constitutional elements of the present invention. In this drawing, essence of the present invention, interrelated placement of constitutional elements and location thereof, and the possibility of changing the placement of each constitutional elements in various forms can be known. The 20 construction of the present invention is explained with reference to Fig. 2. Two belt wheels C,D(56,60) having rotation axes which are in parallel with each other, said belt wheels are located top and bottom in the direction of a slant line, a belt tension spring(62) is mounted on a belt wheel D(60) so 25 that belt wheels C,D(56,60) can be opposed each other whereby a belt maintains a tensile force turning round the belt wheels C,D(56,60), a tape wheel(52) is located within an acute angle from the tilt belt of belt rotation rail, rotation axes of belt wheels C,D(56,60) and axis of a tape wheel(52) are in parallel 30 with each other and three axes are located to be the shape of a triangle, a compression roller(64) compresses the belt between a tape wheel(52) and a belt wheel D(60), a cutting

apparatus(48) is located at the top of a tape wheel(52) and is adjacent to the belt of a belt wheel C(56).

The operation of the present invention comprising the aforesaid construction will be described hereinafter. Turning
5 the belt by hand or by using an electrical motor, an adhesive tape(50), pulls up the adhesive tape attaching on an adhesive flash(46) from a compression roller to a cutting apparatus(48), then the adhesive tape is continuously lifted up attaching on an adhesive flash(46) when an adhesive tape roll(54) is being
10 released, a cutting apparatus(48) cuts the adhesive tape(50) lifted up attaching on the adhesive flash, and the cut adhesive tape is taken from the front of the belt for use.

The construction and operation of the present invention were described above, but the variation of the aforesaid
15 construction satisfying said operation is available. First, a belt can be located in parallel with a horizontal surface. Second, in light of interrelation of location between the belt and a tape wheel(52), if the drawing of Fig. 2 is turned round 360 degree, it can be seen that, the operation can be carried
20 out even at any location and degrees. Third, as for the method for compressing an adhesive tape(50) on an adhesive flash(46) without a compression roller(64), an adhesive tape(50) can be compressed on an adhesive flash(46) by a slippery flat strip, plate or surface other than the roller. As an alternative
25 method, placing an adhesive tape over the belt from a belt wheel C(56), an adhesive tape is compressed on an adhesive flash(46) by the tensile force, which is necessary for the adhesive tape to be separated from a tape roll(54). In this construction, a cutting apparatus(48) is positioned in front of
30 the belt and thus it will be useful when the belt is to be very long. Fourth, using several belt wheels(56,60), a tape wheel(52) can be partially wrapped up by the belt from the belt

wheels. As described above, the construction of the present invention and disposition of constitutional elements thereof can be changed in various forms, and various designs applying the present invention can be created.

5 Fig. 3 illustrates the use status for the design of Fig. 1. This drawing also illustrates the method for exchanging and mounting an adhesive tape roll(54), and an ancillary design. After inserting a tape roll(54) into a tape wheel(52), a tape is inserted into a tape cassette(26) as specified as an arrow
10 E in the drawing, a transparent cover(28) is closed as specified as an arrow F in the drawing, an adhesive tape(50) is tightly placed over a curved surface of a compression roller(64) and a tape cassette(26) as specified as a chain line in the drawing, a tape cassette is forced into a main body(24)
15 as specified as an arrow G in the drawing, a bottom end of a transparent cover(68) is locked on a lock(30), and a clamp(74) is fastened to the main body.

Fig. 4 and Fig. 5 illustrate embodiments of a cutting apparatus(48) according to the present invention, and an
20 ancillary invention. In case of the prior art, a cutting apparatus applied to the pirn winder cutting apparatus illustrated in Fig. 6, a cutting length of the adhesive tape cannot be adjusted, while the cutting length thereof can be selected in various forms in case of the cutting apparatus
25 illustrated in Fig. 4. The construction and principle thereof with the operation will be explained hereinafter. On a narrow and long surface of a rectangle-shaped piston(76), like a small matchbox, two wheels are mounted right and left of a rail hole(40) to be explained in the following having a rotation
30 axis which is on the straight line paralleled with the lengthy direction of the surface, another narrow and long surface opposing to the surface which two wheels were mounted, has a

hole enabling to mount a piston spring(82), a piston spring(82) is mounted, a lever(84) is inserted on one surface of the two wide surfaces opposing each other, said surface has a hole enabling to operate as a lever support(80), and the opposing
5 surface has a lengthy hole pierced to the lever's moving direction. Such piston inserted into a square hole reciprocates with elasticity of a piston spring(82) along a rail hole(40) of a belt. A cutting edge(72) has wide surface opposing to the piston, and a hole inserting the end of the lever. A
10 cylinder(48) has a rectangle-shaped hole which a piston(76) and a cutting edge(72) can be inserted parallelly opposing to a wide surface, and a lever pin(78) is mounted so that a lever(84) can pass through a piston(76) and reach to the hole of the cutting edge. The aforesaid cutting apparatus, when a
15 piston(76) reciprocates while a wheel(70) of the cutting apparatus is sunk in a rail hole(40) of the belt or projected therefrom, operates said reciprocation movement to the cutting edge by the enlarged displacement through instrument of a lever(84). From Fig. 5, if a longitudinal interval of a rail
20 hole(40) is changed in various forms by a variety of quantities of the rail on which a wheel of the cutting apparatus runs as specified as rails A,B of the belt in the drawing, a cutting length of the adhesive tape can be changed in various forms. By shifting a cutting length adjusting knob(20) as specified in
25 Fig. 1 and Fig. 3 left and right, a wheel(70) of the cutting apparatus selects rails A,B, whereby a cutting length of the tape is adjusted. In addition to such cutting apparatus, various cutting apparatuses such as the apparatus using a gear, and an electrical solenoid, an electrical motor, and the
30 apparatus using a rotary cutter, can be conceived for application.

Summarizing the foregoing, the construction of a belt was

explained with reference to Fig. 1, the constitutional elements and operation of the present invention which are the essence of an invention was explained with reference to Fig. 2. With reference to Fig. 3, a method for mounting and exchanging an adhesive tape roll(54), and the construction thereof were explained. With references to Fig. 4 and Fig. 5, the construction and operation of the cutting apparatus which a cutting length can be adjusted were explained. With reference to Fig. 6, the present invention was explained in comparison with the prior art.

As mentioned above, the present invention is not only the invention for new uses, but also the invention for a mechanical apparatus, applying a conveyor belt to the adhesive tape cutting apparatus. Comparing the present invention with the prior art of the pirn winder cutting apparatus, a great difference lies in that a conveyor belt is used in the present invention while a water wheel is used in the prior art. Accordingly, a triangle roller cutting apparatus of the pirn winder cutting apparatus is possibly applied, but there is a possibility of applying the cutting apparatus having superior function which a cutting length can be adjusted, a lot of quantities can be cut by one-shot, the operation can be operated smoothly by comprising the pulley set mechanism in construction, clear cutting can be achieved by the straight line of the cutting edge other than the saw blade-shape thereof according to a cutting apparatus, and the cut adhesive tape is easily stripped off as it is being attached on the narrow surface of an adhesive flash(46). Explaining briefly, the present invention is an adhesive tape cutting apparatus applying a belt having an adhesive flash(46). This means that various adhesive tape cutting apparatuses can be designed and conceived by applying a belt having an adhesive flash. Further,

it means that an adhesive tape cutting apparatus applying a belt having an adhesive flash is the invention I conceived, and that any design or invention applying the belt having an adhesive flash shall fall into the scope of right of the
5 present invention.

CLAIMS

1. An adhesive tape cutting apparatus applying a conveyor,
comprising;
an endlessly connected link-shaped belt wrapping up two or
5 more belt wheels C,D whereby said belt is rotated maintaining
a tensil force,
a tape wheel(52) having a rotation axis paralleled with
rotation axes of the belt wheels C,D, said tape wheel being
located at one position of the belt rotating,
10 a compression apparatus(64) having a belt between the tape
wheel(52) and the belt, and
a cutting apparatus(48) being located adjacent to the belt
apart from the compression apparatus(64).
2. An adhesive tape cutting apparatus according to Claim 1,
15 wherein said cutting apparatus uses a belt comprising a thin
adhesive flash(46) on outer surface of the belt attaching the
adhesive tape, said adhesive flash being projected at regular
intervals allowing space of a finger's insertion.
3. An adhesive tape cutting apparatus according to Claim 1,
20 wherein a method and means for exchanging and mounting an
adhesive tape roll(54) illustrated in Fig. 3 comprises;
inserting a tape wheel(52),
rotating a tape wheel(52),
mounting a cutting apparatus(48) on a supportable upper
25 end of a tape cassette(26),
mounting a tape compression apparatus(64) on one edge of
bottom end, in which a transparent cover hinge pin(66) supports
a transparent cover(28) at catercorner of a compression
apparatus(64) enabling partial rotation, and
30 fixing a tape cassette(26) by inserting partially the tape
cassette into a main body(24) backward of the main body.

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FIG. 1

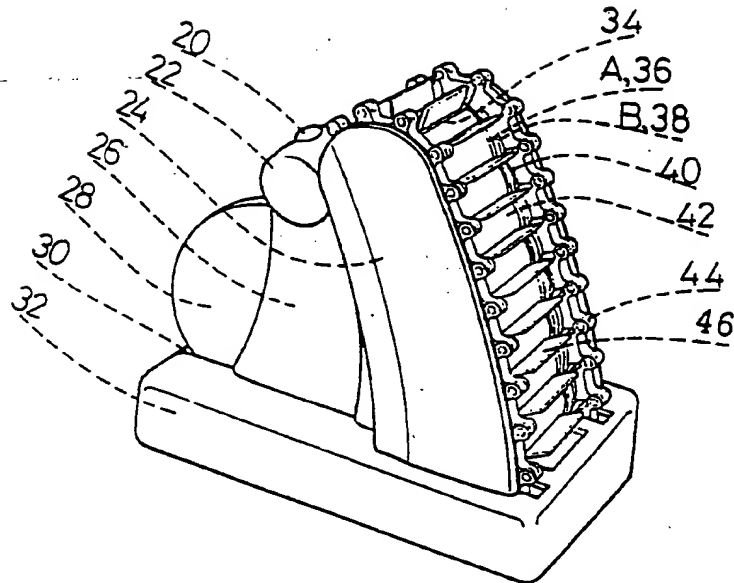
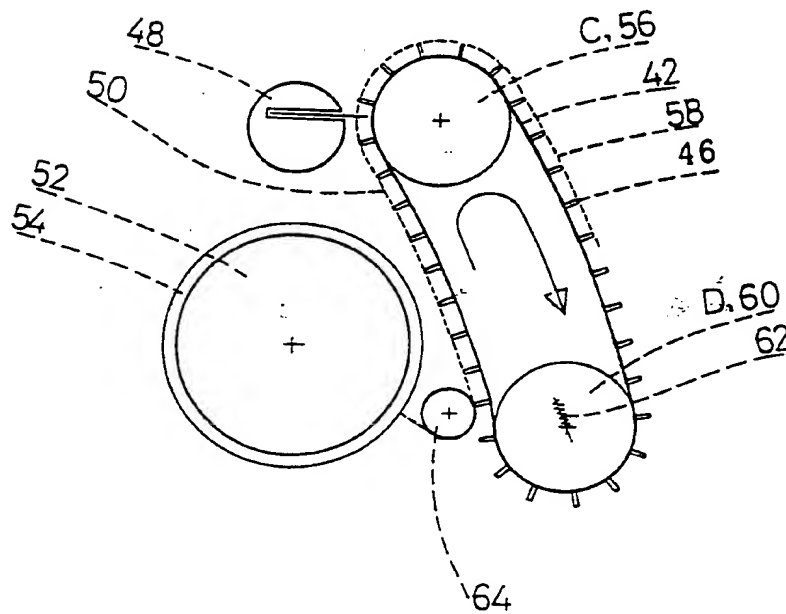


FIG. 2



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FIG. 3

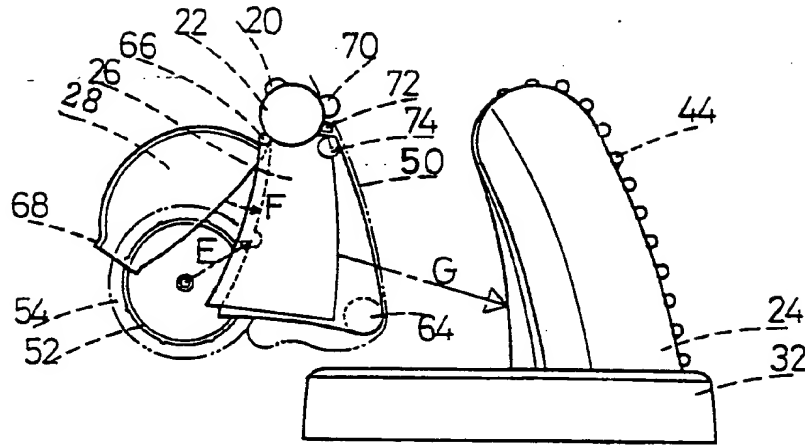


FIG. 4

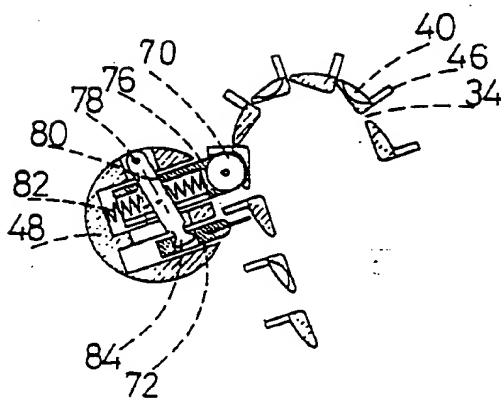
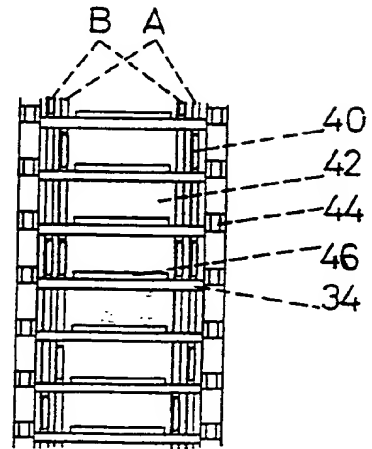
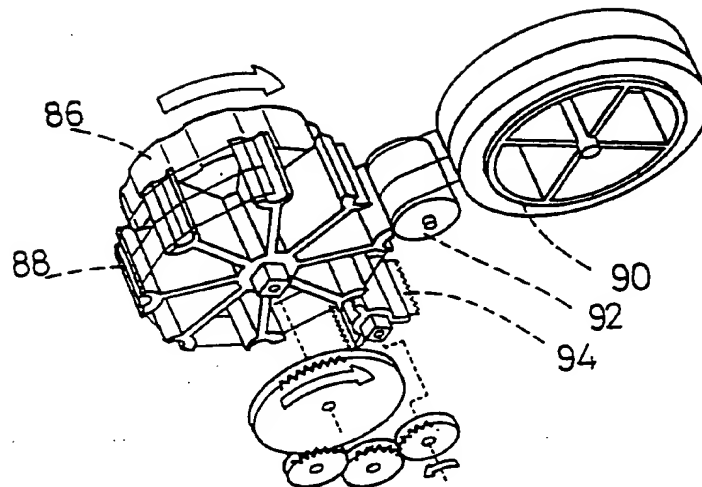


FIG. 5



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FIG. 6



A. CLASSIFICATION OF SUBJECT MATTERInt.Cl.⁵: B 65 H 35/07

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB, A, 2 137 961 (KI SANG LEE) 17 October 1984 (17.10.84), see Fig. 6.	1, 3
A	US, A, 2 308 464 (TREVOR) 12 January 1943 (12.01.43), see Fig. 1.	1, 3
A	US, A, 2 509 641 (HILLMER) 30 May 1950 (30.05.50), see Fig. 1, column 6, lines 62 to 69.	2

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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GB A 2137961		GB A0 8403478	14-03-84
		GB A1 2137961	17-10-84
		GB B2 2137961	03-12-86
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US A 2308464		keine - none - rien	
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